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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,289	12/07/2001	Pierre LeBrun	01184	4897
23338	7590	03/26/2004	EXAMINER	
DENNISON, SCHULTZ, DOUGHERTY & MACDONALD 1727 KING STREET SUITE 105 ALEXANDRIA, VA 22314			KASTLER, SCOTT R	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/926,289	Applicant(s) LEBRUN ET AL.	
	Examiner Scott Kastler	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 17-23 and 26-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-23 and 26-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-23, 26-35 and 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Montgrain. Montgrain teaches a device and method for injection of gas bubbles into a molten metal contained in a treatment volume (20) where the device includes a static injection part (7) made of an inert material which at col. 6, lines 23-32 for example states that the part may be made of graphite (stated by the applicant to be non-wettable to molten aluminum at page 10 of the instant specification for example), iron, silicon carbide (a refractory carbide) or refractory metals (all stated by the applicant, at claim 3 for example, to be wettable by molten aluminum), where the static part (7) includes a number of orifices (4) located at the top of tapered protuberances (3) the tops of which protuberances form planar surfaces, which are removable (by cutting for example), with a single orifice in each protuberance, configured to mechanically (geometrically) limit the contact area of the orifices, and bubble size so that bubbles do not come into contact while they are being formed (see col. 2 lines 39-41 for example), bubble size being limited to 10mm or below (see col. 7 line 37 for example), where the flow of the molten metal through the trough (20) provides a shear force to the molten metal, thereby showing all aspects of the above claims since, when using non wettable graphite, the ratio of protuberance diameter to orifice diameter is 5 (see col. 3 lines 19-21 where a protuberance diameter of 5 mm is cited and an orifice diameter of 1 mm is cited), and in any event, with respect to non-wettable

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materials, the use of non-wettable materials, such as the iron, silicon carbide or refractory metals used by Montgrain, provides a spreading ratio within the recited limits, as stated by the applicant at page 4, lines 11-15, and page 4, line 26 to page 5 line 15.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-23, 26-35 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montgrain. As applied to claims 17-35 and 37-39 above, Montgrain shows all aspects of the above claims except the disposition of the orifices on a planar surface if the flat tops of the protuberances of Montgrain are not considered planar surfaces. Montgrain, at col. 5 lines 20-30 for example states that rather than using protuberances to contain the orifices, the orifices can be formed in a continuous surface of the diffuser plate (the static part). In this event, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the orifices of Montgrain operate in substantially the same manner for substantially the same purpose with substantially the same results as the orifices of the instant claims. It has been well settled that where a component shown by the prior art (the orifices and static part of Montgrain) is shown to operate in substantially the same manner with substantially the same results as the component as claimed, motivation to alter either the location of the

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component (movement of the orifices of Montgrain to a planar surface) or to alter the configuration of the component (forming the static part of Montgrain as a planar surface with orifices therein) would have been a modification obvious to one of ordinary skill in the art at the time the invention was made. See *In re Dailey*, 149 USPQ 47, *In re Japikse* 86 USPQ 70 and MPEP sections 2144.04 IV B and 2144.04 VI C. In the instant case, since Montgrain allows for the use of alternate configurations of the static part and orifice arrangement, including disposing the orifices on a planar surface of the static part, motivation to alter the shape of the static part of location of the orifices so that the orifices of Montgrain are located on a planar surface of the static part of Montgrain, without materially altering the operation of the orifices and static part of Montgrain, would have been a modification obvious to one of ordinary skill in the art at the time the invention was made.

Claims 36 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montgrain in view of Manabu et al. As applied to claim 17 above, Montgrain shows all aspects of the above claims except the use of bubble detection means for monitoring the bubble size. Manabu et al, cited by the applicant, teaches that bubbles in molten metal are known to be monitored by x-ray monitoring in order to more effectively control the gas introduction process. Because more effective control of the gas introduction process would also be desirable in the system disclosed by Montgrain, motivation to include x-ray monitoring means, as taught by Manabu et al, would have been a modification obvious to one of ordinary skill in the art at the time the invention was made.

***Response to Arguments***

Applicant's arguments filed on 2-9-2004 have been fully considered but they are not persuasive. Applicant's argument that Figure 1 of Montgrain does not teach a plurality of orifices in a substantially planar surface is not persuasive because the teaching of Montgrain includes this embodiment as shown in figure 10 of Montgrain for example. Applicant's further argument that the protuberances of Montgrain are not completely planar, in that the edges constitute abrupt discontinuities is not persuasive because firstly, the term "comprising" allows for further structure on the protuberance, as long as it includes a planar surface with a plurality of orifices. Secondly, the surfaces of the face of the protuberance of Montgrain containing the orifices is substantially planar, and as in the disclosed embodiment, the fact that the surface ends at some point (the edge) does not prevent the surface from being planar. Applicant's further argument that the protuberances of Montgrain are not removable is not persuasive because this limitation does not appear in any of the instant claims. Finally, applicant's argument that Montgrain does not teach or suggest the use of a continuous planar surface is not persuasive because, as admitted by the applicant at page 3 of the arguments, Montgrain specifically states that the orifices can be formed on a continuous plate.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

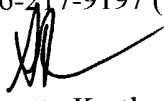
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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Kastler whose telephone number is (571) 272-1243. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Scott Kastler  
Primary Examiner  
Art Unit 1742

sk